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TRIENNIAL REPORT

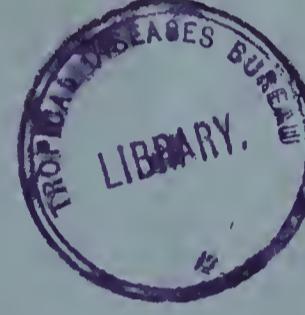
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ON

VACCINATION IN ASSAM



FOR THE YEARS



1911-12, 1912-13 & 1913-14.

BY

THE HON'BLE COLONEL H. E. BANATVALA, I.M.S.,
SANITARY COMMISSIONER, ASSAM.



SHILLONG :

PRINTED AT THE ASSAM SECRETARIAT PRINTING OFFICE.

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1914.

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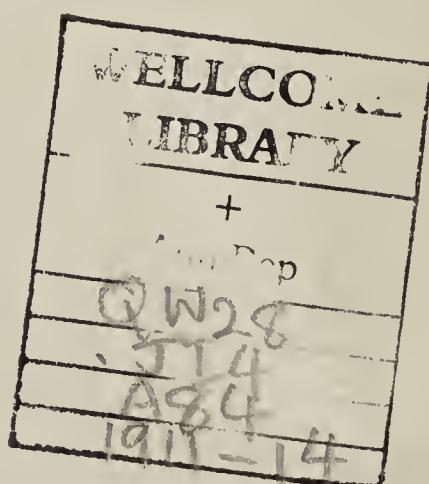
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TRIENNIAL REPORT

ON

VACCINATION IN ASSAM

FOR THE YEARS

1911-12, 1912-13 and 1913-14.

As vaccinations are performed in the hill tracts and in the Manipur State, the statistics in this report include those concerning the population of those regions, and are based on the total population of the Province of Assam according to the Census of 1911, *viz.*, 7,059,857.

2. Almost all vaccination operations in the province are performed by departmental vaccinators. In tea gardens vaccination operations are performed by tea-garden medical officers.

In the first year of the triennium under review there were 331 vaccinators, in the second 330 and in the last 313. The average number of persons vaccinated by each vaccinator was 914 in 1913-14, against 964 in 1912-13 and 877 in 1911-12.

3. Of the 333,649 vaccination operations performed during the year 1913-14, 301,241 were primary vaccinations, and 35,408 re-vaccinations, against 333,363 with 298,983 primary vaccinations and 34,380 re-vaccinations in 1912-13, and 305,845 with 290,915 primary vaccinations and 14,930 re-vaccinations in 1911-12.

During the triennium 1911-12, 1912-13 and 1913-14, the total number of vaccination operations performed were 975,857, against 803,061 in the previous triennium, showing an increase of 172,796 cases, which is satisfactory. In 1902-05, the number of operations performed was 881,025 and the number of cases vaccinated in the triennium under review compares favourably with the numbers in 1902-05. The variations in the district figures are discussed in section 8.

4. The ratio of deaths from small-pox per 1,000 of population during the year 1913 was .40, against .67 in 1912 and .35 in 1911. In each year of the triennium the highest rate was recorded in Kamrup. Vaccination has been vigorously pushed in this district, and this resulted in an increase of 36,077 operations during the triennium under review, as compared with the previous triennium.

No widespread epidemic of small-pox was reported in any district. In 1912-13 the disease prevailed in certain parts of the Sylhet district, but its progress was arrested by activity in carrying on vaccination operations in affected areas. The Civil Surgeon, Goalpara, reports an outbreak of small-pox in 1913-14 from Lakhipur, Dudnai, Sidli (Circle III), Guma, and certain parts of Bilasipara thana. Extra vaccinators were appointed and vaccination was continued during the off season.

The diagram showing death rates from small-pox and the protection afforded by successful vaccination is attached.

5. During the year 1913-14, 1,324 vaccination operations were performed by dispensary staff, against 1,590 in 1912-13 and 1,678 in 1911-12. The areas round dispensaries reserved for the dispensary staff were opened to the departmental vaccinators in 1908-09 and dispensary vaccination is now confined to the hill districts. A small quantity of lymph is kept in certain dispensaries in the plains for those who prefer to be vaccinated by this agency.

6. The percentage of success of operations performed by all establishments combined was 98.41 in the case of primary vaccinations and 78.15 in that of re-vaccinations in 1913-14, against 97.91 and 73.99, respectively, in 1912-13 and 98.14 and 80.98, respectively, in 1911-12.

The successful percentages in primary vaccinations and re-vaccinations in the case of vaccinators were 98·17 and 78·11, respectively, in 1913-14, against 97·92 and 73·01, respectively, in 1912-13 and 98·19 and 80·28, respectively, in 1911-12. In the case of the dispensary staff the percentages of success were in 1913-14, 93·26 and 88·47, respectively, against 96·29 and 75·41, respectively, in 1912-13 and 97·54 and 94·87, respectively, in 1911-12; and in the case of other agencies 97·17 and 71·89, respectively, in 1913-14, against 97·46 and 84·49, respectively, in 1912-13, and 97·28 and 83·33, respectively, in 1911-12.

Persons successfully vaccinated per 1,000 of population during the year 1913-14 were 45·59, against 44·57 in 1912-13 and 41·85 in 1911-12. I am unable to accept the 100 per cent. of success in re-vaccination operations reported from certain districts.

7. During the triennium all vaccinations were performed with glycerinated lymph manufactured by the Vaccine Dépôt at Shillong.
Different methods of vaccination.

8. The subjoined table gives an idea of the progress made in vaccination in the districts of Assam year by year. By comparing the work of the triennium under review with that of the previous triennium we find that there was an increase in eight

Vaccination work in different districts.

districts and a decrease in four. The increase (1,22,741) is most marked in Sylhet, in which a steady increase has been maintained since 1911-12. As remarked in the report in 1912-13 small-pox broke out in the subdivisions of Habiganj, Sunamganj and North Sylhet in this district and a large number of operations were performed in that year. The Civil Surgeon made an experiment to work the district with licensed vaccinators and 11 licenses were issued, but as the experiment was not successful, licensed vaccinators will not be appointed in Sylhet in future. The reasons for the lack of success of this agency appear to be that much difficulty is experienced by vaccinators in realizing fees from the people. The Civil Surgeon in his report acknowledges with appreciation the assistance received from the district executive in combating popular opposition to vaccination. The next highest increase (36,077) is reported in the district of Kamrup. The "Mahapurushias" of this district object on religious grounds to accept vaccination, but their prejudice is being slowly overcome. 20,687 of them have been vaccinated during the triennium under review against 4,013 in the previous triennium. The Civil Surgeon remarks that personal influence is of great value in overcoming this opposition. Nowgong reports an increase of 9,615 operations. The attention of the district authorities was drawn to the very unsatisfactory state of vaccination in this district last year: 8 additional vaccinators were sanctioned by the Local Board and 13,380 operations were performed in 1913-14, which is the highest in record for the last 15 years. This very satisfactory increase is due to the efforts of the Civil Surgeon, Lieutenant Charles Bancroft, energetically supported by the district executive authorities under the Deputy Commissioner, Mr. J. A. Dawson, I.C.S. Cachar follows with an increase of 7,709 operations. Rai Sahib Behari Lal Dhar, Deputy Inspector of Schools, rendered very considerable help to the Civil Surgeon in pushing on vaccination in his district. The increase of 5,946 operations in the Garo Hills is satisfactory. The number of operations performed in 1913-14 is reported to have been double that of 1912-13. The figures are obviously so large for this small and sparsely populated district that I am not satisfied as to their correctness, and I am enquiring into the matter. If accepted as correct they mean that in a district well known for its want of communications and with a density of population of 50 persons per square mile the average number of operations performed by each vaccinator was 4,000, as against the Sylhet district with a density of 458 persons per square mile and an average of 1,444 operations for each vaccinator. The Civil Surgeon reports that people were under the impression that a single vaccination in infancy is sufficient protection for life, but when it was explained to them that vaccination to be effective must be repeated every 6 or 7 years, a large number of re-vaccinations were performed. The Civil Surgeon of Darrang remarks that vaccination is progressing slowly and he believes that the people now understand its benefit. The prejudices of the Miri sect who were formerly opposed to vaccination are now being overcome. A decrease of 6,699 operations in the Khasi and Jaintia Hills district during the triennium as compared with the number of the previous triennium is partly due to the abnormal activity displayed in 1908-09; but in view of the fact that the vaccinating staff was strengthened by 5 additional permanent vaccinators and one additional Sub-Inspector of Vaccination in October 1911, more activity should have been displayed. The decrease of 7,223 operations in the district of Sibsagar during the triennium is said

to be due to the absence of small-pox in epidemic form. This is probably more or less correct, as the district organisation is a good one, but the decrease in the number of operations performed should be noted and checked.

The statement showing the total number of persons vaccinated by all agencies viz., Vaccine Department, Dispensaries, tea gardens and Railway Vaccinators, during the Triennia 1908-11 and 1911-14.

Districts.	Population.	1908-09.	1909-10.	1910-11.	Total of the triennium.	1911-12.	1912-13.	1913-14.	Total of the triennium.	Difference.	
										Increase.	Decrease.
1	2	3	4	5	6	7	8	9	10	11	12
Cachar	4,97,463	17,873	16,075	17,589	51,537	17,425	18,987	22,834	59,246	7,703	...
Sylhet	2,472,671	89,358	81,830	86,901	258,089	115,257	143,779	121,794	380,830	122,741	...
Khapi and Jaintia Hills	235,069	21,858	9,385	5,695	36,038	7,983	12,224	10,032	80,239	...	6,699
Naga Hills ...	149,623	5,151	5,475	5,805	16,431	5,144	5,640	6,774	17,567	1,136	...
Lushai Hills ...	91,204	3,982	3,294	3,491	10,767	3,483	3,892	4,004	11,279	512	...
Goalpara	600,643	22,175	27,488	20,732	70,395	23,773	21,292	24,609	69,674	...	721
Kamrup	637,828	33,671	20,882	20,560	90,113	40,537	41,691	43,959	120,190	36,077	...
Darrang	377,314	10,674	8,142	11,593	30,409	11,626	11,673	11,991	36,290	4,881	...
Nowgong	303,596	5,913	5,103	8,781	19,797	9,005	7,027	18,380	29,412	9,615	...
Sibsagar	690,299	26,643	22,288	24,002	72,928	24,431	20,501	20,768	65,700	...	7,228
Lakhimpur ...	488,989	19,192	19,826	18,722	57,740	18,239	19,804	18,505	56,548	...	1,192
Garo Hills ...	158,936	15,050	17,833	13,977	46,860	15,495	13,004	24,217	52,803	5,946	...
Manipur	342,622	18,623	13,589	13,845	41,057	13,477	13,817	13,782	41,076	19	...
Total of the Province ...	7,059,857	285,163	260,205	257,603	803,061	305,845	333,363	336,649	975,857	188,636	15,840

9. Consequent on the territorial redistribution effected on the 1st April 1912, the vaccination inspecting staff was allotted to Assam according to their distribution in different districts at the time of the change without reference to their grades. A revised gradation of the inspecting staff was therefore proposed and sanctioned with effect from 1st April 1913. The pay and grading of the staff, as sanctioned, is as follows :—

	<i>Inspectors.</i>	Number.	Rate of pay. Rs.
First grade	50
Second grade	2	45
Third grade	4	40

	<i>Sub-Inspectors.</i>	
Senior grade	6
Junior grade	14

The above provides for three supernumerary junior grade Sub-Inspectors to act in vacancies caused by leave or sickness.

10. Civil Surgeons inspected 5·50 and 2·71 per cent. of the primary vaccination and re-vaccinations during the year 1913-14, against 5·54 and 2·45, respectively, in 1912-13 and 7·08 and 4·1, respectively, in 1911-12. In the triennium 1902-03 to 1904-05 the average percentage number inspected by Civil Surgeons was 9·22 and 3·69; and from these figures it appears that the amount of attention given by Civil Surgeons to these inspections is decreasing. The subordinate inspecting staff inspected 51·41 and 42·87 per cent. of the primary vaccinations and re-vaccinations during the year 1913-14, against 60·26 and 49·80, respectively, in 1912-13 and 58·10 and 36·59, respectively, in 1911-12. The Deputy Sanitary Commissioner inspected 3,122 cases of vaccinations in various districts.

The following table shows the successes claimed by vaccinators for primary and secondary operations and those found on inspection by the inspecting staff and Civil Surgeons:—

Vaccinators.		Inspecting staff.		Civil Surgeons.	
Primary.	Revaccination.	Primary.	Revaccination.	Primary.	Revaccination.
98·47	78·11	92·83	61·53	97·07	64·39

11. In towns in which compulsory vaccination is enforced, 1,843 infants under one year of age were successfully vaccinated during Vaccination in compulsory areas. 1913-14, against 1,294 in 1912-13 and 1,530 in 1911-12.

The percentage of infants successfully vaccinated to total number of infants available for vaccination was 78·2 in 1913-14, against 62 per cent. in 1912-13 and 79 per cent. in 1911-12.

During the year 1913-14 almost all available infants were vaccinated in the towns of Goalpara, Golaghat, Shillong and Dibrugarh. 93 per cent. of the available infants were vaccinated in the town of Tezpur, in Nowgong 87·3 per cent., in Sylhet 82·8 per cent., in Dhubri 78·4 per cent., in Jorhat 71·5 per cent., in Sibsagar 61·2 per cent., in Silchar 51·8 per cent., in Gauhati in 46·6 per cent., and in Habiganj 4·7 per cent.

Last year the attention of Civil Surgeons was drawn to the unsatisfactory state of infant vaccination in compulsory areas and the inspecting staff was directed to obtain from the registrars of births a list of the names and addresses of all children born within their registration circles and to follow the history of each child carefully until it is successfully vaccinated. The town of Silchar is not well protected. The Civil Surgeon points out that the existing arrangement under which the vaccinator does the work of a clerk and of a typist in the Municipal Office is not satisfactory, and he recommends that a whole-time vaccinator be appointed. The attention of the Chairman will be drawn to this. During the year 1913-14, 53 notices were issued to parents and guardians of children in the town of Silchar, 8 persons were prosecuted and 1 was convicted. The remaining 7 were discharged on condition that they would have their children vaccinated. In the same town 29 persons were prosecuted and 22 convicted in 1911-12 and 1912-13. The Bengal Vaccination Act, V of 1880, was extended to the Municipality of Habiganj in December 1913, a Municipal vaccinator has been appointed, and it is hoped that protection will be afforded to all infants next year. From January to March 90 primary vaccinations and 56 revaccination operations were performed in this town.

Notices under the Act were served on defaulters in the towns of Dhubri and Goalpara, and as a result of this the objectors yielded to vaccination. In the town of Gauhati in 1913-14 out of a recorded birth-rate of 287 and an infant mortality of 38, only 116 children were vaccinated out of 249 who should upon theoretical calculations have been vaccinated. The attention of the Civil Surgeon was drawn to this failure to carry out infant vaccinations, and it was pointed out that if the defect was not remedied forthwith it would have an adverse effect on the health of the people. The attention of the Civil Surgeon will again be drawn to this subject. The Deputy Sanitary Commissioner has noted a reluctance on the part of the public to aid the inspecting staff in verifying the results of vaccination work in this town, and it appears that the importance of efficiency in this department of work is not sufficiently realised.

In 1911-12, the Imperial Vaccination Act, XIII of 1880, was replaced by the Bengal Vaccination Act, V of 1880, in the Sylhet, Gauhati, Dhubri, Goalpara, Nowgong and Dibrugarh Municipalities. The Bengal Vaccination Act, V of 1880, has not yet been extended to the Municipalities of Sunamganj and Karimganj and the Union of Maulvi Bazar, and this should be done at an early date.

12. The total number of capillary tubes loaded at the Animal Vaccine Depôt at Shillong with lymph was 1,875,886 in 1913-14 as compared with 1,819,859 in 1912-13 and 1,716,938 in 1911-12. 892 calves were inoculated in 1913-14 as compared with 962 in 1912-13 and 917 in 1911-12. The average cost of manufacturing lymph per tube during the year 1913-14 was 2·1 pies as compared with 2·4 pies in 1912-13 and 2·05 pies in 1911-12.

The cost of the Depôt during the past three years is shown in the accompanying table :—

—	1911-12.			1912-13.			1913-14.		
	1	2	3	4					
	Rs.	a.	p.	Rs.	a.	p.	Rs.	a.	p.
Establishment	4,461	7	6	4,191	11	7
Purchase of calves	7,504	0	0	8,568	0	0
Purchase of vaccine tubes	8,788	3	0	7,535	8	0
Miscellaneous	2,714	7	5	2,649	3	9
Total	23,438	1	11	22,944	7	4
							20,977	12	11

Major H. Innes, I.M.S., was in charge of the Depôt throughout the triennium except a short period from the 18th February 1914 to the 31st March 1914, during which period Major L. B. Scott, I.M.S., held charge. The subordinate charge of the depôt was held throughout the triennium by Sub-Assistant Surgeon Rai Sahib Kamal Charan Datta. This depôt still continues to supply lymph to the Eastern Bengal districts. The quality of the lymph is generally reported to be excellent.

13. The total cost of the department for the year 1913-14 was Rs. 64,426-4-4, as against Rs. 66,342-10-8 in 1912-13 and Rs. 64,501-6-1 in Cost of the department. 1911-12. Of the total expenditure of Rs. 64,426-4-4 during the year 1913-14, Rs. 43,202-14-5 were paid from provincial revenues, Rs. 19,273-15-1 from local funds, Rs. 1,089-13-10 from municipal funds and Rs. 859-9-0 were contributed by the Manipur State. The average cost of each successful vaccination was Re. 0-3-4 in 1913-14 as compared with Re. 0-3-6 in 1912-13 and Re. 0-3-8 in 1911-12.

14. The total number of vaccination operations performed on tea estates was 11,662 in 1913-14, as against 12,504 in 1912-13 and General. 13,525 in 1911-12. In 1913-14, 847 operations were reported to have been performed in jails and lunatic asylums and 88 on the line of Eastern Bengal State Railway in the district of Kamrup.

The Deputy Sanitary Commissioner reports (I) that in the course of his inspection of rural vaccination work, numerous cases of falsification of returns by vaccinators have come to his notice. It appears to be a general practice throughout the Assam Valley Districts, for vaccinators to enter the number of insertions made by them in the column showing the number of points successful and they do not appear to make any effort to verify the result of their operations, with the result that nearly all their work shows 100 per cent. of successes. The only check on these returns is the verification performed by the inspecting staff, who cannot, however, inspect the entire work of the vaccinators. The percentage of successful results reported is therefore higher than is in truth correct. The Deputy Sanitary Commissioner, out of 3,122 operations and entries verified, found a percentage insertion success of 95.57.

The remedy for this falsification of returns is to insist on the inspecting staff reporting to the Civil Surgeon all vaccinators who show successful returns against cases of failure, and to dismiss those who deliberately fudge their returns.

(II) That the order by which vaccinators should leave Form I—the village register of vaccination—with the gaonbura on completion, is rarely observed, and this gives rise difficulty in inspecting vaccination when the vaccinator is working elsewhere. Civil Surgeons should see that this order is carried out.

He suggests that it is a question whether the system of employing licensed vaccinators is suitable for Assam, and that it is probable that better results would be obtained were only paid vaccinators employed.

He has observed that when licensed vaccinators and paid vaccinators are working in the same district, as in Kamrup, the temptation to the paid vaccinator to extort payment to which, unlike the licensed vaccinator, he is not entitled, is considerable. The result of the dual system is that in some cases the people refuse to pay the licensed vaccinator the fees to which he is entitled, while in other cases, the paid vaccinator extorts fees to which he has no claim.

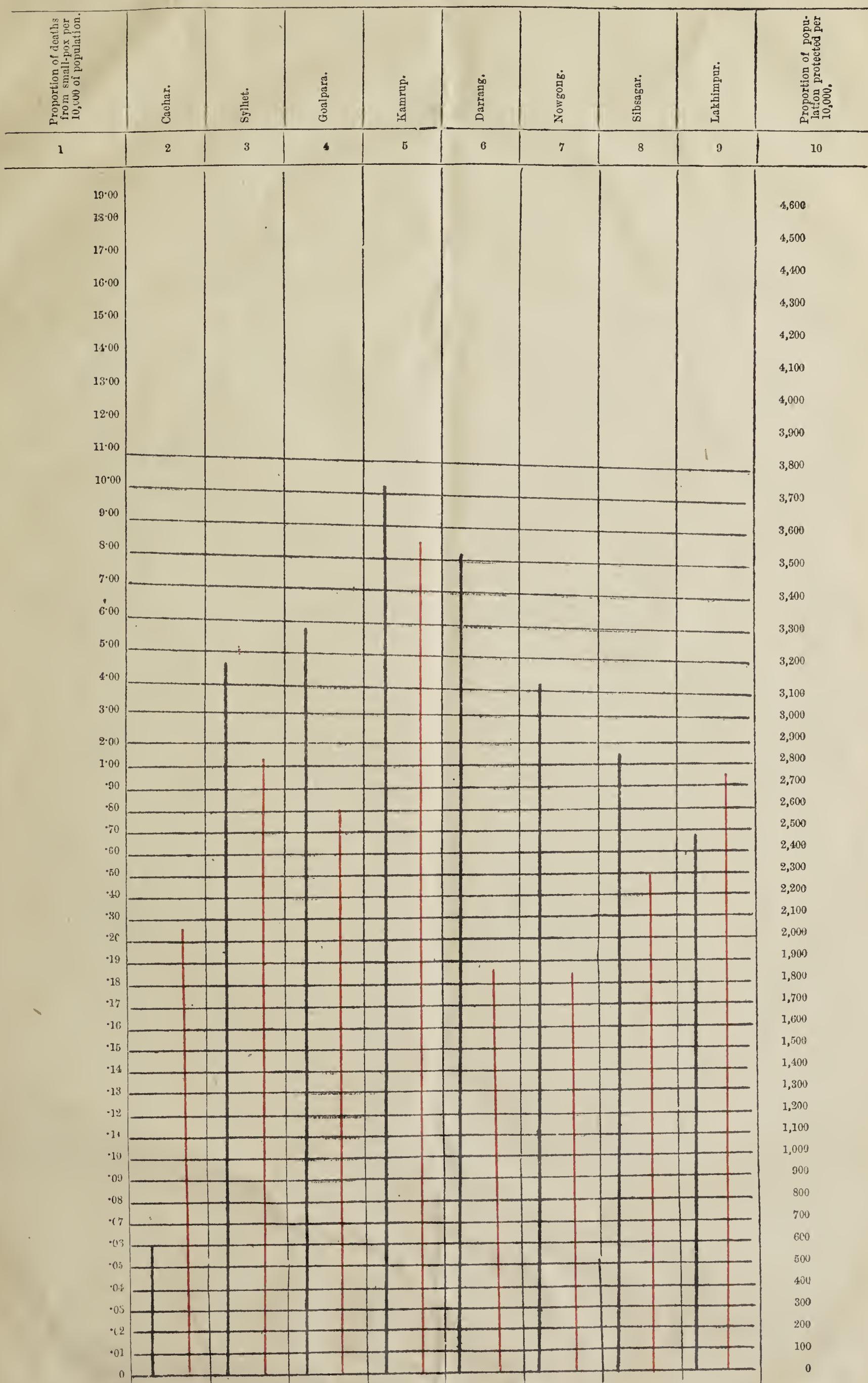
The Civil Surgeon of Goalpara has drawn attention to a misunderstanding of the meaning of Form 2—Village register of vaccination. It is commonly assumed that column 14, successful in one point, refers to the success of the vaccination operation as a protection against small-pox, whereas the entry only refers to the insertion success. Vaccination operations showing less than two successful points of insertion should not be shown in Form 6 or Form 39 among successful operations.

He also draws attention to the insufficient number of insertions frequently made. There is little doubt that the tendency in Assam is to accept too few a number of insertions as a satisfactory protection against small-pox. Civil Surgeons should instruct their district vaccinators that insertions in one point only are to be shown in form 6 as failures and that they should endeavour to vaccinate in three or in four points whenever possible. Success in this direction might be considered in allotting rewards to vaccinators.

15. The prescribed statements are appended to these notes.

H. E. BANATVALA, *Col., I.M.S.,*
Sanitary Commissioner, Assam.

The following diagram illustrates the death-rates from small-pox in each district side by side with the proportion of the population protected against the disease by vaccination during the seven years 1907-1908 to 1913-1914.



Note.—Black lines indicate death-rates from small-pox.
Red lines indicate the proportion of population protected by vaccination.

STATEMENTS Nos. I—VII.

A.—VACCINE

Statement No. I—Showing particulars of Vaccination in

No.	District.	Population of district according to the census of 1911.	Average population per square mile.	Average number of vaccinators employed throughout the season.	Total number of persons vaccinated.			Average number of persons vaccinated by each vaccinator.	Primary	
					Male.	Female.	Total.		Total.	Under one year.
1	2	3	4	5	6	7	8	9		
SURMA VALLEY AND HILL DISTRICTS.										
1	Cachar ... By paid vaccinators ...	497,463	139	22	11,001	9,502	20,503	932	17,997	1,666
2	Sylhet ... { By paid vaccinators ... } { By licensed vaccinators }	2,472,671	458	{ 80 { 4 }	60,633	54,913	115,546	1,444	101,667	8,258
3	Khasi and Jaintia Hills ... By paid vaccinators.	235,069	40	9	1,408	1,399	2,807	702	2,805	448
4	Naga Hills ... By paid vaccinators ...	149,623	48	5	3,279	2,97	6,206	1,241	5,479	803
5	Lushai Hills ... By paid vaccinators ...	91,204	12	5	2,255	1,413	3,698	739	3,108	146
Total of Surma Valley and Hill Districts.		3,446,030	136	{ 121 { 4 }	82,001	73,984	155,985	1,289	135,884	12,519
ASSAM VALLEY DISTRICTS.										
6	Goalpara ... { By paid vaccinators ... } { By licensed vaccinators }	600,643	151	{ 2 { 26 }	296	180	476	238	320	242
7	Kamrup ... { By paid vaccinators ... } { By licensed vaccinators }	667,828	173	{ 46 { 36 }	17,876	15,860	33,736	734	31,507	7,976
8	Darrang ... By paid vaccinators ...	377,314	110	16	6,238	5,648	11,886	743	11,433	2,078
9	Nowgong ... By paid vaccinators ...	303,596	79	25	6,657	6,224	12,881	515	12,799	3,952
10	Sibsagar ... { By paid vaccinators ... } { By licensed vaccinators }	690,299	138	{ 23 { 11 }	7,138	6,562	13,700	596	13,572	3,622
11	Lakhimpur { By paid vaccinators ... } { By licensed vaccinators }	468,989	103	{ 14 { 14 }	4,455	4,215	8,670	619	8,609	2,094
12	Garo Hills ... By paid vaccinators ...	158,936	50	6	13,999	10,030	24,029	4,005	14,918	13,096
Total of Assam Valley Districts.		3,267,605	118	{ 132 { 87 }	56,659	48,719	105,378	798	93,158	33,060
13	Manipur ... By paid vaccinators ...	316,223	41	9	7,098	6,561	13,659	1,518	13,616	11,611
Total Vaccine Department.		{ By paid vaccinators ... } { By licensed vaccinators }		262 { 91 }	145,758	129,264	275,022	1,050	242,668	57,190
	Total ...	7,059,857	115	353	170,723	152,005	322,728	914	288,443	71,338
Total Dispensaries ...										Sum
Total Railways ...										...
Total tea gardens by garden agencies ...										88
Total Jails and Lunatic Asylums ...										...
Grand total ...		7,059,857	115	353	177,524	157,801	336,649	914	301,241	77,051

	1	Total number of persons vaccinated.		Total number of operations performed.	
		Primary.	Re-vaccinations.	Primary.	Re-vaccinations.
	2	3	4	5	
By special staff (Statement I)	288,443	34,285	288,443	34,285
By dispensary staff (Statement III)	1,005	319	1,005	319
By other agencies—tea garden, Railway and Jail agencies	11,793	804	11,793	804
Total	301,241	35,408	301,241	35,408

DEPARTMENT.

Assam during the year 1913-14.

Vaccination.			Re-vaccination.			Percentage of successful cases in which the results were known.		Persons successfully vaccinated per 1,000 of population.		Percentage of unknown cases to total cases.		Average annual number of persons successfully vaccinated during previous five years.		Average annual number of deaths from small-pox during previous five years.	
Successful.			Total.	Successful.	Unknown.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	Number.	Ratio per 1,000.	Number.	Ratio per 1,000.	Number.	Ratio per 1,000.
Over one and under six years.	Total of all ages.	Unknown.	Total.	Successful.	Unknown.	Primary.	Re-vaccination.	Persons successfully vaccinated per 1,000 of population.	Primary.	Re-vaccination.	Number.	Ratio per 1,000.	Number.	Ratio per 1,000.	
10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
13,603	17,756	24	2,506	1,799	37	98·79	72·86	39·31	13	1·48	15,572	31·30	7	·01	
68,936	100,456	...	13,879	10,367	...	98·80	74·70	45·79	...	...	97,527	39·44	863	·34
1,992	2,402	...	2	1	...	85·63	50·00	...	...	...	97,527	39·44	863	·34
4,264	7,530	42	2,399	1,598	91	99·20	69·23	38·82	55	3·79	10,476	44·56	48	·20	
3,649	5,336	47	727	507	26	98·23	72·32	39·05	86	3·58	4,673	31·23	...	...
2,250	2,396	253	590	370	93	83·92	74·45	30·33	8·14	15·76	2,641	28·95	...	...
92,702	133,474	366	20,101	14,641	27	98·49	73·74	43·68	26	1·22	130,889	37·98	918	·26	
1,992	2,402	...	2	1	...	85·63	50·00	...	...	...	...	...	...	...
64	315	...	156	93	22	98·44	69·40	38·97	...	14·10	22,076	36·75	289	·49	
10,833	21,811	141	1,611	1,159	71	97·62	75·26	...	63	4·41	...	...	...	...
21,195	31,171	7	2,229	1,524	18	98·95	68·93	63·37	...	80	32,419	48·45	740	1·10	
5,321	9,39	2	282	229	2	99·38	81·79	...	02	71	...	...	...	...
9,193	11,274	...	453	234	8	98·61	52·58	30·50	...	1·77	9,474	25·10	277	·73	
7,441	12,789	...	82	65	...	99·92	79·27	42·31	...	...	6,421	21·14	479	1·57
8,411	13,447	...	128	109	1	99·68	8·83	27·19	...	78	19,292	27·91	177	·25	
3,152	5,210	...	2	2	...	99·52	100·00	...	...	...	...	...	...	...
5,828	8,486	43	61	39	5	98·83	69·64	30·84	50	8·20	14,391	30·68	20	·04	
4,615	5,693	2	34	29	...	98·85	85·29	...	03	...	14,053	88·41	18	·11	
1,454	14,510	50	9,111	8,138	242	97·86	91·76	142·75	33	2·66	...	...	...	...
53,552	92,012	100	12,220	10,202	296	98·87	85·55	44·61	10	2·42	118,126	33·15	2,010	·61	
23,951	42,143	145	1,929	1,419	79	98·40	76·70	...	33	4·09	...	...	...	...
732	12,343	1,072	33	33	...	93·32	100·00	35·74	7·87	...	11,251	32·49	...	...
147,026	237,829	1,538	32,354	24,876	543	98·63	78·17	...	63	1·67	...	...	...	...
25,943	44,545	145	1,951	1,420	79	97·62	76·67	43·72	3·16	4·09	260,266	36·85	2,928	·41	
172,969	282,374	1,683	34,285	26,296	622	98·47	78·11	...	58	1·81	...	...	...	...
613	900	40	319	261	24	93·26	88·47	...	3·98	7·52	2,528	...	...	...
...	73	...	...	...	...	82·95	...	...	...	...	...	...	...	...
4,719	10,901	25	570	399	14	98·50	71·76	...	.22	2·45	11,059	...	...	...
...	486	...	234	179	23	79·28	86·89	...	...	11·96	400	...	...	...
178,301	294,734	1,748	35,408	27,135	688	98·41	78·15	45·59	58	2·70	274,253	38·34	2,928	·41	

Mary.

Percentage of successful cases in which results were known.		Average number of persons vaccinated by each vaccinator.		Number of children successfully vaccinated.		Ratio of successful vaccination p r 1,000 of population.	Total cost of Department.	Average cost o each successfu case.
Primary.	Re-vaccinations.	Vaccinators employed.	Persons vaccinated by each vaccinator.	Under one year.	One and under six years.			
6	7	8	9	10	11	12	13	14
98·47	78·11	353	914	71,338	172,969	43·72	Rs. 64,426 a. 4 p. 4	Rs. 0 a. 3 p. 4
93·26	88·47	...	...	230	613	...	...	...
97·17	71·89	...	...	5,483	4,719	...	...	...
98·41	78·15	353	914	77,051	178,301	45·59	Rs. 64,426 a. 4 p. 4	Rs. 0 a. 3 p. 4

Statement No. II—Showing the cost of Vaccination in

No.	District.	Expen													
		European supervising officer.	Native supervising officer.	Pay.	Paid vaccinators.	Licensed vaccinators.	Clerks.	Peons, etc.	Total pay of establishment.						
1	2	3	4	5.	6	7	8	9	10	11	12	13	14	15	
1	Cachar ...	Rs. a. p.	Rs. a. p.	2	787 15 6	22	1,506 1 0	...	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
2	Sylhet ...	...	...	6	2,182 6 5	80	7,134 15 0	4	...	...	...	...	...	...	2,204 0 6
3	Khasi and Jaintia Hills	...	...	2	660 0 0	9	1,728 0 0	...	...	...	...	...	...	...	9,317 5 5
4	Naga Hills ...	...	...	1	300 0 0	5	840 0 0	...	...	...	...	...	...	...	2,888 0 0
5	Lushai Hills ...	...	...	1	300 0 0	5	486 15 4	...	...	...	...	...	...	...	1,140 0 0
6	Goalpara ...	...	...	2	840 0 0	2	360 0 0	26	...	...	...	...	...	...	786 15 4
7	Kamrup ...	...	...	3	1,126 0 0	46	3,163 8 0	36	...	...	...	...	...	...	4,289 8 0
8	Darrang ...	...	...	2	900 0 0	16	1,566 0 0	...	...	...	...	...	...	...	2,466 0 0
9	Nowgong ...	...	...	2	961 0 0	23	1,227 15 4	...	...	...	...	...	...	...	2,188 15 4
10	Sibsagar ...	...	...	2	894 2 10	24	1,613 7 0	11	...	...	...	1	96 0 0	...	2,602 9 10
11	Lakhimpur ...	...	...	2	860 0 0	14	1,440 0 0	14	...	...	...	...	...	...	2,300 0 0
12	Garo Hills ...	...	...	1	396 0 0	6	657 0 0	...	...	...	...	...	...	...	1,053 0 0
13	Manipur State ...	...	...	1	240 0 0	9	600 0 0	...	...	...	...	...	...	...	840 0 0
Total of Districts ...		...	...	27	10,447 8 9	262	22,822 13 8	91	...	...	...	1	96 0 0	...	32,866 6 5
Shillong Vaccine Depôt		1 600 0 0	1	1,868 4 11	16	2,308 15 9	...	...	...	...	...	...	...	...	4,777 4 8
Total for the Province		1 600 0 0	23	12,315 13 8	278	24,631 13 5	91	...	...	...	...	1	96 0 0	...	37,643 11 1

* The average cost of each successful vaccination as shown in column 27 has been calculated on the total number of successful vaccinations

† Includes the cost of lymph manufactured for

Assam during the year 1913-14.

diture.				Paid from									
Travelling allowance.	Contingencies.			Total cost.	Imperial Fund.	Provincial Fund.	Local Fund.	Municipalities.	Native State.	Total.	Number of all successful vaccinations and re-vaccinations.	Average cost of each successful case.	
	Cost of lymph.	Other contingencies.											
16	17	18	19	20	21	22	23	24	25	25	26	27	
Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	Rs. a. p.	
1,315 4 6	...	203 2 0	3,812 7 0	...	1,967 6 0	1,761 1 0	84 0 0	...	3,812 7 0	12,555	0 3 1		
2,346 1 9	...	147 4 8	11,810 11 5	...	3,765 5 2	7,939 11 5	105 10 10	...	11,810 11 5	113,226	0 1 8		
1,154 14 0	...	21 10 6	3,564 8 6	...	3,372 8 6	...	192 0 0	...	3,564 8 6	9,128	0 6 9		
819 10 0	...	7 0 0	1,466 10 0	...	1,466 10 0	...	...	...	1,466 10 0	5,843	0 4 0	
455 6 0	...	75 2 5	1,317 7 0	...	1,317 7 9	...	...	...	1,317 7 9	2,766	0 7 7	
629 7 9	...	146 6 4	1,975 14 1	...	1,488 13 9	424 0 4	63 0 0	...	1,975 14 1	23,408	0 1 4		
916 2 6	...	331 0 0	5,536 10 6	...	2,115 15 6	8,036 11 0	324 0 0	...	5,536 10 6	42,323	0 2 1		
513 15 0	2,979 15 0	...	1,413 15 0	1,476 0 0	90 0 0	...	2,979 15 0	11,508	0 4 1		
397 0 6	...	30 0 0	2,615 15 10	...	1,346 12 6	1,218 0 4	51 3 0	...	2,615 15 10	12,854	0 3 3		
...	...	60 0 0	2,662 9 10	...	954 2 10	1,708 7 0	...	...	2,662 9 10	18,768	0 2 3	
504 7 0	...	430 0 0	3,234 7 0	...	1,404 7 0	1,650 0 0	180 0 0	...	3,234 7 0	14,227	0 3 7		
543 9 6	...	10 0 0	1,611 9 6	...	1,611 9 6	...	...	...	1,611 9 6	22,698	0 1 2	
...	...	19 9 0	859 9 0	...	...	...	...	859 9 0	859 9 0	12,376	0 1 1	
9,100 14 6	...	1,481 2 6	43,448 7 5	...	22,225 1 6	19,273 15 1	1,089 13 10	859 9 0	43,448 7 5	308,670	0 2 3		
...	14,952 3 6	1,243 4 9	20,977 12 11†	...	20,977 12 11	...	...	...	20,977 12 11†	...	...
9,100 14 6	14,952 3 6	2,729 7 3	64,426 4 4	...	43,202 14 5	19,273 15 1	1,089 13 10	859 9 0	64,426 4 4	308,670	0 3 4		

and re-vaccinations performed by the Special Department only.
the Eastern Bengal districts.

B.—DISPENSARY

Statement No. III—Showing Dispensary Vaccination

District.	Number of dispensaries in each district to which a vaccinator is attached.	Average number of vaccinators attached to dispensaries during the season.	Total number of persons vaccinated.	Average number of persons vaccinated by each vaccinator.	Primary vaccination.				
					Total.	Under one year.	Over one and under six years.	Total of all ages.	Unknown.
1	2	3	4	5	6	7	8	9	10
Cachar	45	...	35	6	15	35	...	...
Sylhet
Khasi and Jaintia Hills
Naga Hills	...	568	...	348	64	210	317	5	5
Lushai ,,	...	306	...	248	7	220	227	5	5
Goalpara
Kamrup
Darrang
Nowgong	...	94	...	92	12	80	92	...	...
Sibsagar
Lakhimpur
Garo Hills	...	188	...	159	21	86	107	30	30
Manipur State	...	123	...	123	120	2	122	...	...
Total	1,324	...	1,005	230	613	900	40	

Comparative Statement No. IV—Showing the number of persons primarily vaccinated, the undermentioned

Establishment.	Total number.	Number successfully vaccinated.	Persons							
									Year ending	
	1	2	3	4	5	6	7	8	9	
Government ...	59,030	58,226	43,036	40,857	27,714	29,119	39,432	38,531		
Dispensaries ...	20,852	20,234	24,943	24,297	23,319	22,644	15,664	15,294		
Municipal ...	2,487	2,481	2,058	1,977	2,748	2,735	3,299	3,262		
Local Funds ...	159,693	158,266	153,252	148,926	165,182	162,257	146,694	142,534		
Licensed vaccinators ...	20,811	20,723	19,580	19,487	37,704	37,562	25,072	24,874		
Apprentices ...	3,033	2,976	4,391	4,359	10,857	7,756	3,812	3,801		
Native States ...	14,700	13,855	16,389	14,252	15,527	14,281	14,247	12,150		
Total ...	280,622	276,761	263,649	254,155	283,051	276,354	248,220	240,416		

VACCINATION.

in Assam during the year 1913-14.—

Re-vaccination.			Percentage of successful cases in which the results were known.			Percentage of unknown cases to total cases.	
Total.	Successful.	Unknown.	Primary.	Re-vaccination.	Primary.	Re-vaccination.	
11	12	13	14	15	16	17	
10	6	4	100·00	100·00	...	40·00	
...	
...	
220	203	17	92·42	100·00	1·44	7·73	
58	34	...	93·42	58·62	2·02	...	
...	
...	
...	
2	...	2	100·00	...	...	100·00
...	
...	
29	18	1	82·95	64·29	18·87	3·45	
...	...	...	99·19	...	...	...
319	261	24	93·26	88·47	3·98	7·52	

and the number of those persons who were successfully vaccinated in Assam in each of official years.

primarily vaccinated.

Total number.	Number success-fully vaccinated.	Total number.	Number success-fully vaccinated.	Total number.	Number success-fully vaccinated.	Total number.	Number success-fully vaccinated.	Total number.	Number success-fully vaccinated.	Total number.	Number success-fully vaccinated.

31st March

1908-09.		1909-10.		1910-11.		1911-12.		1912-13.		1913-14.	
10	11	12	13	14	15	16	17	18	19	20	21
39,838	39,078	31,212	30,128	25,926	23,580	24,950	24,146	30,130	28,802	33,014	31,655
3,160	2,990	2,818	2,474	2,549	2,128	1,464	1,390	1,036	937	1,015	900
3,513	3,098	2,309	2,182	2,347	2,237	3,262	3,023	3,517	3,093	2,897	2,865
150,917	149,433	147,644	142,315	161,234	154,616	179,887	176,566	179,380	176,043	179,040	176,981
31,084	30,929	39,645	38,283	31,811	29,902	37,963	37,231	45,790	44,336	44,537	43,523
5,010	4,920	5,187	5,102	4,682	4,563	16,762	16,411	13,669	13,542	15,329	15,007
13,302	11,100	13,316	10,166	13,358	11,612	13,193	11,756	13,656	11,521	13,626	12,343
246,824	241,548	242,131	230,652	241,907	228,638	277,481	270,523	287,178	278,274	289,448	283,274

Statement No. V—Showing particulars of Vaccination verified by Inspecting Officers for the year 1913-14.

District.	Total number of persons vaccinated.	Primary.		Re-vaccination.		Total number inspected.		Percentage of inspection to total number vaccinated.		Percentage of cases found successful to total number inspected.		Percentage of successes reported by vaccinators.		Percentage of successes reported by vaccinators.		
		Primary.	Re-vaccination.	By Deputy Sanitary Commissioners or Civil Surgeons.	Re-vaccination.	Primary.	Re-vaccination.	By Native Superintendents or other inspecting officers.	Re-vaccination.	Primary.	Re-vaccination.	By Native Superintendents or other inspecting officers.	Re-vaccination.	Primary.	Re-vaccination.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Cachar ...	18,032	2,516	1,314	131	12,969	1,463	7·28	5·20	71·92	58·15	99·01	67·17	96·07	68·01	98·79	72·86
Sylhet ...	104,472	13,881	1,051	...	49,398	6,001	1·58	...	47·28	43·23	99·81	...	92·26	67·90	98·45	74·69
Khasi and Jaintia Hills ...	7,633	2,399	658	230	7,023	1,782	8·62	9·59	92·00	74·28	98·63	60·00	99·47	72·78	99·20	69·23
Naga Hills ...	5,827	947	696	22	868	32	11·94	2·32	14·90	3·38	95·40	40·90	95·05	43·75	98·23	72·32
Lushai ,,	8,356	643	18	...	1,073	94	·54	...	31·97	14·51	94·44	...	80·52	61·70	83·92	74·45
Goalpara ...	22,834	1,767	2,000	22	11,842	931	8·76	1·24	51·86	52·69	92·84	72·72	91·87	76·47	97·63	74·79
Kamrup ...	40,967	2,511	2,060	37	26,927	1,773	5·02	1·47	65·73	70·60	98·66	81·00	97·06	63·29	93·05	70·37
Darrang ...	11,433	453	422	12	5,700	183	3·69	2·65	49·85	40·39	97·60	50·00	96·16	45·35	98·61	52·58
Nowgong ...	12,891	84	1,372	...	6,779	66	10·64	...	52·59	77·38	99·42	...	93·15	24·45	19·2	79·27
Sibsagar ...	18,807	130	2,478	...	4,748	106	13·17	...	25·24	71·15	97·95	...	98·76	88·23	99·20	85·38
Lakhimpur ...	14,370	95	82	...	10,859	46	·57	...	75·57	33·82	95·12	...	98·14	63·04	98·84	75·56
Garo Hills ...	15,077	9,140	1,697	481	2,098	2,358	11·26	5·29	13·91	25·80	83·14	73·92	84·08	63·27	97·86	91·76
Manipur State ...	13,749	33	1,477	...	8,606	...	10·74	...	62·69	...	13·69	...	84·29	...	98·32	100·00
Total ...	289,443	34,604	15,925	938	148,890	14,836	5·50	2·71	51·44	42·87	97·07	64·39	92·83	61·53	98·47	78·11

Statement No. VI—Showing the number of Vaccinations performed in Municipal towns on children under one year of age during the year 1913-14.

District.	Town.	Number of births during the year 1913.	Number of deaths amongst children under one year during the Year 1913.	Number of successful vaccination on children under one year during the year ending 31st March 1914.	Date of extension of Vaccination Act to town.
1	2	3	4	5	6
Cachar	Silchar	193	27	86	21st January 1892.
Sylhet	Sylhet	404	113	241	1st October 1882.
	Habiganj	98	34	3	11th December 1913.
Khasi & Jaintia Hills	Shillong	288	61	240	21st June 1895.
	Total of Surma Valley and Hill Districts.	983	235	579	
Goalpara	Dhubri	140	24	91	13th February 1891.
	Goalpara	182	44	151	12th November 1890.
Kamrup	Gauhati	287	38	116	August 1882.
Darrang	Tezpur	169	26	133	22nd May 1907.
Nowgong	Nowgong	173	31	124	7th April 1897.
	Sibsagar	197	14	112	21st January 1892.
Sibsagar	Jorhat	239	46	138	12th April 1892.
	Golaghat	92	14	73	24th March 1892.
Lakhimpur	Dibrugarh	412	47	326	September 1883.
	Total of Assam Valley Districts.	1,891	284	1,264	
	Total for the Province.	2,874	519	1,843	

Statement No. VII—Showing, side by side, the ratio per 1,000 of population of deaths

District.			1904-05.		1905-06.		1906-07.		1907-08.	
			Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.
1	2	3	4	5	6	7	8	9		
Cachar	•06	9,959	•01	18,519	•01	18,640	•004	15,563
Sylhet	•01	113,890	•008	110,363	•02	108,263	•09	82,038
Khasi and Jaintia Hills	5,263	...	5,776	...	5,018	•08	13,179
Naga Hills	5,514	...	5,952	•009	5,535	•02	8,557
Lushai ,,	2,175	...	2,320	...	1,694	•01	3,517
Goalpara	•07	20,170	•15	18,010	1•22	17,989	•67	16,922
Kamrup	•20	31,051	3•17	21,911	3•34	29,365	3•45	31,695
Darrang	1•07	10,852	1•32	12,545	1•79	12,141	4•19	9,226
Nowgong	3•49	11,316	•08	11,809	•69	7,769	•35	7,139
Sibsagar	•85	28,422	•14	28,466	•06	25,727	•63	20,295
Lakhimpur	14,942	•04	14,927	•36	16,712	•74	15,409
Garo Hills	•007	11,967	...	16,830	•007	15,126	...	16,826
Manipur State	13,953	...	14,517	...	15,310	...	12,152
Total	...	•26	279,474	•41	280,945	•55	279,321	•78	252,518	

from small-pox and the number of successful vaccination during the ten years ending 1913-14.

1908-09.		1909-10.		1910-11.		1911-12.		1912-13.		1913-14.	
Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.	Ratio of deaths from small-pox.	Number of successful vaccination.
10	11	12	13	14	15	16	17	18	19	20	21
.01	13,533	.02	15,177	.03	15,635	.002	16,641	.008	16,992	.006	19,596
.08	83,817	.07	79,768	.07	83,189	.38	108,987	.99	132,022	.47	113,226
.43	21,272	.59	8,815	.04	5,026	.004	7,369	.13	10,740	.35	9,128
...	4,777	...	5,335	...	4,518	...	4,836	...	5,119	...	6,263
...	3,585	...	2,738	...	2,799	...	3,121	...	3,123	...	3,027
.34	21,875	.83	26,561	.28	19,065	.44	23,151	.69	19,731	.59	23,408
2.40	31,024	1.07	27,111	.58	25,006	1.21	39,178	1.89	39,978	1.02	42,323
2.77	9,028	1.22	6,778	.30	10,036	.56	10,606	.50	10,964	.82	11,508
2.44	5,483	3.49	4,523	3.05	7,456	.44	8,469	.95	6,602	.43	12,946
.85	21,814	.57	19,084	.19	21,089	.16	18,490	.09	18,298	.14	18,768
.15	14,613	.08	14,688	.05	14,470	...	14,119	.006	14,063	.07	14,227
...	14,851	.09	17,120	.15	13,219	.01	15,161	.09	12,338	.84	22,813
...	11,370	...	10,429	...	12,082	...	12,025	...	11,678	...	12,498
.64	257,042	.47	238,127	.28	233,590	.35	282,153	.67	301,648	.40	309,831

Resolution on the Vaccination Report of Assam for the years ending 1913-14.

Extract from the Proceedings of the Chief Commissioner of Assam in the Municipal Department, No. 4466M., dated the 25th July 1914.

READ—

Vaccination Report of the Province of Assam for the three years ending 1913-14.

R E S O L U T I O N.

THE large increase in the number of vaccination operations performed in the period under report, as compared with the preceding three years, is satisfactory. Lieutenant-Colonel Gurdon is particularly pleased to notice that the prejudices of the "Mahapurushia" sect in the Kamrup district are being overcome, and that the increase in the number of vaccinations amongst this community during the triennium was more than five-fold.

It is reported that an experiment in the appointment of licensed vaccinators remunerated by fees in Sylhet was not successful, and doubts have been expressed as to the suitability of this system to Assam. This question should be carefully examined by the Sanitary Commissioner.

The insufficiency of the inspection of vaccination work by Civil Surgeons was noticed in the Resolution of the Government of Eastern Bengal and Assam on the Report on vaccination for the three years ending 1910-11, and the Officiating Chief Commissioner is therefore disappointed to find no record of improvement in this respect in the present report. The Inspector General of Civil Hospitals will be asked to obtain the explanations of those officers whose inspection work was inadequate.

Wide variation exists as regards the completeness of vaccination in the compulsory areas, and there appears to be no reason why, whilst almost all the available infants were vaccinated in Goalpara, Golaghat, Shillong, and Dibrugarh, only about half of them were vaccinated in Sibsagar, Silchar, and Gauhati. Lieutenant-Colonel Gurdon trusts that special attention will be paid to this point by the Civil Surgeons concerned.

By order of the Chief Commissioner of Assam,

A. W. BOTHAM,

Second Secretary to the Chief Commissioner of Assam.

